

# An American look at Scandinavian Construction

Case Study



Layering. That is the key to the Scandinavian principle of residential construction. The idea that layering insulation in different stages within the wall assembly eliminates thermal bridging and creates an energy efficient, continuously insulated, air-tight envelope has been part of building practices in Sweden and other parts of Scandinavia for years.

Sweden and the US have a lot of similarities when it comes to the materials that are used in the construction of houses but the Swedish homes have a more efficient wall design. The wood studs are deeper (walls are thicker) to allow for more insulation, there is a separated insulated wiring

chase on the interior of the wall to allow for electrical, plumbing etc, without creating thermal breaks in the wall assembly and there is a third layer of insulation on the exterior between the studs and the cladding. That is why when Swedish vocational students and teachers from the Lidköping De la Gardie gymnasiet School came to Rockford IL to help build the Rockford house, they asked the question "Where is the rest of your wall?". Rockford Illinois has a strong Swedish heritage, with many Swedish immigrants settling and founding industry in the city. The Swedish history and culture is still strong today and Rockford maintains a Industrial Partnership Agreement relationship with Lidköping Sweden with whom they promote economic development for both cities.



### Rockford's Scandinavian Layered Wall

- Cladding System
- Sheathing Panels
- 2x2 Furring 24" oc Verticle
- 1.5" ROCKWOOL AFB®

### Main Stud Cavity Layer

- 2x6 Studs 24" oc
- 5.5" ROCKWOOL COMFORTBATT®

### Interior Layer

- Vapor Control Sheet
- 2x2 Furring 24" oc Verticle n 1.5" ROCKWOOL AFB®
- Gypsum Wall Board



The Swedish American Health System in Rockford has a Foundation that among other activities helps develop and redevelop housing in the neighborhoods surrounding the Hospital. They've completed dozens of projects in the neighborhood, many with the local Habitat for Humanity. The vocational program at the local East High School has been involved with working on the builds of these projects. At one point it was decided to form an exchange program where by Swedish students from Lidköping could come to the US and participate in building a house here and the American students could do the same in Sweden.

ROCKWOOL stone wool insulation is made from natural basalt rock and recycled slag. It was chosen for this project for a number of reasons- a few being dimensional stability, thermal performance and vapor permeability. The use of stone wool insulation is also in line with Swedish building practices, as stone wool is the most common and preferred insulation material in their industry.

**“Working with ROCKWOOL insulation was great for me and my students. Easy to cut and its friction fit fills the whole cavity-not allowing any air to come through. The end result was excellent and I noticed that the indoor temperature rose four degrees during the first hour after installation due to the insulation keeping in the body heat.”**

- *Matt Walling*  
East High School Instructor



The dimensional stability properties of ROCKWOOL differentiate it from other batt insulations. Its rigidity allows for easier, more accurate cuts and gives it a friction fit to eliminate gaping, slumping and sagging.

Unlike other insulations, ROCKWOOL is made of natural materials and does not use blowing agents or chemicals that deteriorate over time. This coupled with its dimensional stability gives ROCKWOOL a long term stable R-value. It maintains its thermal performance giving it longevity in a building assembly.

As North America is moving toward a new standard of building practices, the Rockford project has been more than just a goodwill project. It has been a cross-cultural collaboration, an example, showing a way that North America can easily adapt the Swedish residential wood frame home building practices to achieve energy efficient homes.



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